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JULY 1969

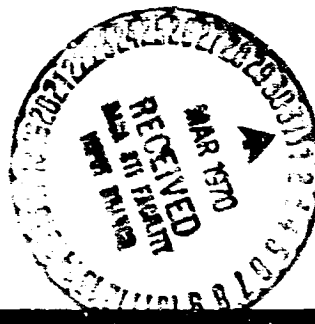
# WORLD DATA CENTER A

## Rockets and Satellites



### CATALOGUE OF DATA

1 JANUARY-30 JUNE 1969



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**CATALOGUE OF DATA  
IN  
WORLD DATA CENTER A**

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**Rockets and Satellites**

**Data Received by WDC-A**

**during the period**

**1 January - 30 June 1969**

**World Data Center A**

**Rockets and Satellites**

**Code 601**

**Goddard Space Flight Center**

**Greenbelt, Maryland, U.S.A. 20771**

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**July 1969**

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## **INTRODUCTION**

World Data Centers conduct international exchange of geophysical observations in accordance with the principles set forth by the International Council of Scientific Unions (ICSU). They were established in 1957 by the International IGY Committee (CSAGI) as part of the fundamental international planning for the International Geophysical Year program to collect data from the numerous and wide-spread IGY observational programs and to make such data readily accessible to interested scientists and scholars for an indefinite period of time. WDC-A was established in the U.S.A.; WDC-B in the U.S.S.R.; and WDC-C in Western Europe, Australia and Japan. This new system for exchanging geophysical data was found to be very effective, and the operations of the World Data Centers were extended by ICSU on a continuing basis to other international programs; the WDC's were under the supervision of the Comité International de Géophysique (CIG) for the period 1960 to 1967 and are now supervised by the ICSU Panel on World Data Centers.

The plans for continued international exchange of data through the World Data Centers in the post-IGY period are set forth in the "Guide to International Data Exchange through the World Data Centers for the period 1960-onwards" which was adopted by CIG in August 1963. These plans are broadly similar to those adopted under ICSU auspices for the IGY.

The World Data Centers collect data and publications for the following disciplines: Airglow, Aurora; Cosmic Rays; Geomagnetism; Glaciology; Gravimetry; Ionosphere; Longitude and Latitude; Meteorology; Oceanography; Rockets and Satellites; Seismology; Solar Activity; Tsunami; UMP (Upper Mantle Project) disciplines (recent movements of the earth's crust, paleomagnetism, volcanology, geochemistry, properties of rocks under high pressure and temperatures, geothermics, deep drilling). In planning for the various scientific programs, decisions on data exchange were made by the scientific community through the international scientific unions and committees. In each discipline the specialists themselves determined the nature and form of data exchange, based on their needs as research workers. Thus the type and amount of data in the WDC's differ from discipline to discipline.

The objects of establishing several World Data Centers for collecting observational data were: (1) to insure against loss of data by the catastrophic destruction of a single center, (2) to meet the geographical convenience of, and provide easy communication for, workers in different parts of the world. Each WDC is responsible for: (1) endeavoring to collect a complete set of data in the field or discipline for which it is responsible, (2) safekeeping of the incoming data, (3) correct copying and reproduction of data, maintaining adequate standards of clarity and durability, (4) supplying copies to other WDC's of data not received directly, (5) preparation of catalogues of all data in its charge, (6) making data in the WDC's available to the scientific community.

### **World Data Center A**

World Data Center A, for which the National Academy of Sciences through the Geophysics Research Board (GRB) and its Committee on Data Interchange and Data Centers has overall responsibility, consists of the WDC-A Coordination Office and eight

subcenters at scientific institutions in various parts of the United States. The GRB periodically reviews the activities of WDC-A and has conducted several studies on the effectiveness of the WDC system. As a result of these reviews and studies some of the subcenters of WDC-A have been relocated so that they could more effectively serve the scientific community. Several of the discipline centers of WDC-A dealing with the upper atmosphere were consolidated in the WDC-A for Upper Atmosphere Geophysics during the period 1 July 1966 to 1 July 1968. The WDC-A for Rockets and Satellites was moved from the National Academy of Sciences to a location adjacent to the National Space Science Data Center at NASA Goddard Space Flight Center on 1 January 1969. Because of its convenient location contiguous to the National Space Science Data Center, this WDC-A subcenter can effectively cooperate with this institution in obtaining reduced and analyzed data to satisfy requests from the scientific community for data required for research projects. The addresses of the WDC-A are given inside the front cover.

Scientific organizations and individual scientists may order documents from the WDC-A for Rockets and Satellites directly or through their national organization responsible for communication with the center. Scientists may borrow materials from the subcenter whenever duplicate copies are available. Otherwise, duplicate copies are made for the requester at a cost not to exceed the cost of copying and transmittal. The subcenter also provides facilities for scientists who wish to participate in on-site study of data. Advance notice of such a visit enables the staff to provide better services to the user.

The data received by WDC-A have been made available to the scientific community in various ways: (1) reports containing data and results of experiments have been compiled, published and widely distributed; (2) synoptic type data on cards, microfilm or tables are available for use at the subcenters and for loan to scientists; (3) copies of data and reports are provided upon request.

#### Rocket and Satellite Data

International agreements concerning international exchange of rocket and satellite data through the World Data Centers were adopted by the Committee on Space Research (COSPAR) in May 1962 (published in COSPAR Information Bulletin No. 9, Part I, July 1962). The "COSPAR Guide to Rocket and Satellite Information and Data Exchange" was incorporated in full by CIG into the overall "Guide to International Data Exchange through the World Data Centers for the period 1960-onwards" (published in November 1963). These agreements were modified to include recommendations for improving the exchange of information and data, and a revised "COSPAR Guide to Rocket and Satellite Information and Data Exchange" was adopted by COSPAR in July 1967 (published in COSPAR Transactions No. 4, Part I, December 1967).

#### Catalogues of Rocket and Satellite Data

A complete listing of all data received by WDC-A for Rockets and Satellites is in the following catalogues:

Catalogues of data received during the period

1 July 1957 - 31 December 1961	The first compilation of data prepared and submitted to COSPAR (April 1962)
1 January 1962 - 31 December 1963	The second compilation of data prepared and submitted to COSPAR (January 1964)
1 January 1964 - 31 December 1965	The third compilation of data prepared and submitted to COSPAR (March 1966)
1 January 1966 - 31 December 1967	The fourth compilation of data prepared and submitted to COSPAR (March 1968)
1 January - 31 December 1968	The fifth compilation of data prepared and submitted to COSPAR (March 1969)
1 January - 30 June 1969	This catalogue (July 1969)

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WDC-A for Rockets and Satellites  
Code 601, Goddard Space Flight Center  
Greenbelt, Maryland 20771 U.S.A.

SRL-38  
3 November 1969

Summary of Sounding Rocket Launchings\*  
Supplementary List 1968-1969

Date (UT)	Time (UT)	Rocket Number or Type	Sponsoring Country	Launching Site	Experiments (see page 3 for Discipline Codes)										Approx. Altitude (km)	Principal Experi- menter(s)
					Aurora and Airglow	Atmospheric Physics	Ionosphere	Energetic Particles	Magnetic Particles	Solar Physics	Astronomy	Planatology	Biology	Test and Other		
					1	2	3	4	5	6	7	8	9	0		
<b>1968</b>																
24 Jul.	0019	NASA 14,349 UA	U.S.A.	Wallops Island	E	G	I								104	J. B. Pearce
24 Jul.	0954	NASA 14,348 UA	U.S.A.	Wallops Island	E	G	D								105	J. B. Pearce
<b>1969</b>																
22 Jun.	0528	NASA 4,183 UG	U.S.A.	Natal						F					165	C. S. Bowyer
16 Jul.	0250	NASA 18,32 UG	U.S.A.	Wallops Island	B					F					209	W. L. Kraushaar A. Bruner
21 Aug.	1409	NASA 18,78 GA	U.S.A.	Wallops Island		G								A	227	D. C. James D. Harpold G. R. Carignan
21 Aug.	1809	NASA 18,102 GA	U.S.A.	Wallops Island			C E								318	G. R. Carignan L. H. Brace
10 Sep.	0435	NASA 4,312 UG	U.S.A.	White Sands							B				157	M. Barwit
11 Sep.	0107	AAD-II-122	Canada	Fort Churchill	C	G	C					A			137	P. Ryder R. Wlochowicz A. G. McNamara
12 Sep.	0102	AAD-II-123	Canada	Fort Churchill	C	G	C					A			138	P. Ryder R. Wlochowicz A. G. McNamara
19 Sep.	0315	NASA 19,05 NE	U.S.A.	Natal						A					856	G. W. Brandon, Jr. D. Greiner
23 Sep.	1636	NASA 4,170 US	U.S.A.	White Sands						E					174	J. T. Jefferies H. C. McAllister
24 Sep.	1745	NASA 4,294 US	U.S.A.	White Sands						E					200	W. A. Rense C. A. Barth E. Bruner
03 Oct.	0224	NASA 4,279 UG	U.S.A.	White Sands						F					158	H. Bradt
Latest Monthly "Data Report - Meteorological Rocket Network Firings" Issued by WDC-A for Meteorology is December 1968																

\*Compiled from rocket flight summaries received by WDC-A for Rockets and Satellites during period 4 October - 3 November 1969.  
† These launch dates were erroneously listed as 24 July 1969 in SRL-37.



## ADDRESSES OF EXPERIMENTERS

Dr. C. A. Barth  
Atmospheric and Space Physics  
Laboratory  
University of Colorado  
Boulder, Colorado 80302 U.S.A.

Dr. C. S. Bowyer  
University of California, Berkeley  
Berkeley, California 94720 U.S.A.

L. H. Brace  
Code 621  
NASA Goddard Space Flight Center  
Greenbelt, Maryland 20771 U.S.A.

Dr. H. Bradt  
Massachusetts Institute of Technology  
Cambridge, Massachusetts 02139 U.S.A.

G. W. Brandon, Jr.  
NASA Manned Spacecraft Center  
Houston, Texas 77058 U.S.A.

Dr. E. Bruner  
University of Colorado  
Boulder, Colorado 80302 U.S.A.

Dr. A. Bunner  
University of Wisconsin  
Madison, Wisconsin 53706 U.S.A.

G. R. Carignan  
University of Michigan  
Ann Arbor, Michigan 48104 U.S.A.

Dr. D. Greiner  
University of California, Berkeley  
Berkeley, California 94720 U.S.A.

D. Grimes  
Code 620  
NASA Goddard Space Flight Center  
Greenbelt, Maryland 20771 U.S.A.

D. Harpold  
Code 621  
NASA Goddard Space Flight Center  
Greenbelt, Maryland 20771 U.S.A.

Dr. M. Harwitt  
Clark Hall  
Cornell University  
Ithaca, New York 14850 U.S.A.

Dr. J. T. Jefferies  
University of Hawaii  
Honolulu, Hawaii 96822 U.S.A.

Dr. W. L. Kraushaar  
Physics Department  
University of Wisconsin  
Madison, Wisconsin 53706 U.S.A.

Dr. H. C. McAllister  
Department of Physics and Astronomy  
2565 The Mall  
University of Hawaii  
Honolulu, Hawaii 96822 U.S.A.

Dr. A. G. McNamara  
National Research Council  
100 Sussex Drive  
Ottawa 1, Ontario, CANADA

J. B. Pearce  
University of Colorado  
Boulder, Colorado 80302 U.S.A.

Dr. W. A. Rense  
Atmospheric and Space Physics  
Laboratory  
University of Colorado  
Boulder, Colorado 80302 U.S.A.

Dr. P. Ryder  
Meteorological Office  
Bracknell, ENGLAND

R. Wlochowicz  
National Research Council  
100 Sussex Drive  
Ottawa 1, Ontario, CANADA

## ROCKET DISCIPLINE CODES

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. Aurora and Airglow</p> <ul style="list-style-type: none"> <li>A. Gegenschein</li> <li>B. Auroral emissions</li> <li>C. Airglow emissions</li> <li>D. Airglow composition</li> <li>E. Atmospheric radiations</li> </ul> <p>2. Atmospheric Physics</p> <ul style="list-style-type: none"> <li>A. Winds</li> <li>B. Pressure</li> <li>C. Temperature</li> <li>D. Albedo</li> <li>E. Planetary radiations (IR)</li> <li>F. Neutral density</li> <li>G. Neutral composition</li> <li>H. Electromagnetic waves</li> <li>I. Acoustics</li> <li>J. Meteorology</li> <li>K. Noctilucent clouds</li> <li>V. Vapor trail</li> <li>Y. Falling sphere - winds, temperature, and density</li> <li>Z. Grenades - winds, temperature, pressure, and density</li> </ul> <p>3. Ionosphere</p> <ul style="list-style-type: none"> <li>A. Wave propagation</li> <li>B. Electric currents (mag. fields)</li> <li>C. Ion/electron density</li> <li>D. Ion/electron composition</li> <li>E. Ion/electron temperature</li> </ul> <p>4. Energetic Particles</p> <ul style="list-style-type: none"> <li>A. Galactic cosmic rays</li> <li>B. Solar particle radiation</li> <li>C. Terrestrial trapped radiation</li> <li>D. Particle precipitation</li> </ul> | <p>5. Magnetic Fields</p> <ul style="list-style-type: none"> <li>A. Geomagnetic fields</li> <li>B. Electric fields</li> </ul> <p>6. Solar Physics</p> <ul style="list-style-type: none"> <li>A. Radio (1-1000mm)</li> <li>B. Infrared (.8-1000 <math>\mu</math>)</li> <li>C. Visible (3000-8000A)</li> <li>D. Ultraviolet (2000-3000A)</li> <li>E. Extreme UV (100-2000A)</li> <li>F. X Rays (.001-100A)</li> </ul> <p>7. Astronomy</p> <ul style="list-style-type: none"> <li>A. Radio (1-1000mm)</li> <li>B. Infrared (.8-1000 <math>\mu</math>)</li> <li>C. Visible (3000-8000A)</li> <li>D. Ultraviolet (2000-3000A)</li> <li>E. Extreme UV (100-2000A)</li> <li>F. X Rays (.001-100A)</li> <li>G. Gamma Rays (&lt;.001A)</li> </ul> <p>8. Planetology</p> <ul style="list-style-type: none"> <li>A. Micrometeorites</li> <li>B. Zodiacal light</li> <li>C. Gravity</li> <li>D. Terrain photographs</li> </ul> <p>9. Biology</p> <p>0. Test and Other</p> <ul style="list-style-type: none"> <li>A. Rocket performance</li> <li>B. Communication systems</li> <li>C. Satellite experiment test</li> <li>U. Discipline unknown</li> </ul> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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X. Subdivision of numbered discipline unknown.

## ROCKETS AND SATELLITES

### A. SOUNDING ROCKETS

The following summaries of sounding rocket launchings have been compiled from reports of sounding rocket launchings, National Reports to COSPAR, and other reports received by World Data Center A for Rockets and Satellites. Shown below is a sample Report of Sounding Rocket Launching from the United States which illustrates the type of information available in the reports submitted to the World Data Centers.

N A S A		
REPORT OF SOUNDING ROCKET LAUNCHING		
Vehicle No.: 13.47GT	Rocket Type: Boosted Arcas II	Launching Site: Wallops Island, Virginia
Range No.: G2-4098		Lat.: 37° 50' 6" N Long.: 75° 29' 11" W
-----		
NASA Project Scientist:	Mr. H. Pedolsky GSFC - Code 721.4 Greenbelt, Maryland	
Experimenter and Location:	Mr. H. Pedolsky GSFC - Code 721.4 Greenbelt, Maryland	
-----		
<b>OBJECTIVES AND INSTRUMENTATION:</b> The objectives of this launch were to study the performance characteristics of the Boosted Arcas II in the configuration provided by the manufacturer and to insure that the vehicle was satisfactory for use in Resolute Bay with Dr. J. Kane's scientific payload.		
-----		
<b>REMARKS:</b>		
-----		
Launching Date: 27 January 1969	Time: 1953 Z	Peak Altitude: 102 km.* ( 63.5 st. mi.)
-----		
<b>Rocket Performance:</b> The rocket reached a peak altitude of 22 kilometers below that predicted. Spin rate appeared to be nominal (12 rps), and drag separation of the stages appeared normal.		
<b>Instrumentation Performance:</b> Instrumentation was good throughout the flight except for the tone ranging which appeared to be too weak for Resolute Bay.		
-----		
<b>PRELIMINARY EXPERIMENTAL RESULTS:</b> The vehicle underperformed according to the predicted trajectory. It appeared that a portion of this performance can be attributed to wind weighting. However, the velocity after first stage burnout was only 900 ft/sec compared with the predicted 1500 ft/sec. The four sabots ejected from the tube properly and were recovered in good condition.		
-----		
<b>COMMENTS AND RECOMMENDATIONS:</b> Additional information derived from the data received will be required to determine if the vehicle, as it performed, will be satisfactory for the Resolute Bay series.		
*Based on plotboard data. Not to be considered final.		
Prepared: 9 April 69		
HP/jr		

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# ROCKETS AND SATELLITES

Summary of Sounding Rocket Launchings* 1 January - 30 June 1969					Experiments										Approx. Altitude (km)	Principal Exper- imenter(s)
Date (UT)	Time (UT)	Rocket Number or Type	Sponsoring Country	Launching Site	Aurora and Airglow	Atmospheric Physics	Ionosphere	Energetic Particles	Magnetic Fields	Solar Physics	Astronomy	Planetology	Biology	Test and Other		
					1	2	3	4	5	6	7	8	9	0		
04 Jan.	0200	T-70	Japan	Kagoshima	A C J										57	N. Arizumi I. Sakai S. Kobane
04 Jan.	0500	T-71	Japan	Kagoshima	A C J										59	N. Arizumi I. Sakai S. Kobane
05 Jan.	0200	T-72	Japan	Kagoshima	A C J										59	N. Arizumi I. Sakai S. Kobane
05 Jan.	0500	T-73	Japan	Kagoshima	A C J										44	N. Arizumi I. Sakai S. Kobane
08 Jan.	0210	S-69-1	Japan	Kagoshima			C								344	I. Kimura H. Oya T. Aso
08 Jan.	0210	S-69-2	Japan	Kagoshima				B							343	H. Takeuchi T. Imai S. Iwasaki H. Irie T. Yamasnita
08 Jan.	0210	S-69-3	Japan	Kagoshima				D							343	S. Takemura K. Fujitani T. Asahina Y. Hishida K. Kajiyama
08 Jan.	0210	S-69-4	Japan	Kagoshima					A						343	I. Aoyama F. Toyama
09 Jan.	0740	S-70-1	Japan	Kagoshima				B							188	N. Fugono H. Mimura K. Abiko T. Matsuzawa O. Sato
09 Jan.	0740	S-70-2	Japan	Kagoshima					A						188	I. Aoyama F. Toyama
09 Jan.	0740	S-70-3	Japan	Kagoshima				C							188	T. Obayashi M. Ejiri T. Yamaki
11 Jan.	0730	NASA 10,236 GM	USA	Point Barrow		G									N/A	E. Hilsenrath
11 Jan.	1015	NASA 10,256 GM	USA	Point Barrow		Z									N/A	W. S. Smith
12 Jan.	0510	T-75	Japan	Kagoshima		G				D					229	T. Tohmatsu T. Ogawa
14 Jan.	0525	AAF-IV-17	Canada	Fort Churchill		C		D							99	A. G. McNamara D. J. McEwen P. A. Forsyth
14 Jan.	1000	S-72-1	Japan	Kagoshima			C D E								229	K. Oyama N. Fugono T. Suitau H. Mimura K. Abiko T. Matsuzawa O. Sato

\*Compiled from rocket flight summaries received by WDC-A Rockets and Satellites during period 1 January - 30 June 1969.  
Note: The explanation for the Rocket Discipline Codes is located at the end of the Summary of Sounding Rocket Launchings section.

# ROCKETS AND SATELLITES

Summary of Sounding Rocket Launchings 1 January - 30 June 1969					Experiments										Approx. Altitude (km)	Principal Experiment (scientific)
Date (UT)	Time (UT)	Rocket Number or Type	Sponsoring Country	Launching Site	Aurora and Airglow	Atmospheric Physics	Ionosphere	Energy Particles	Magnetic Fields	Solar Physics	Astrosurvey	Planetary	Biology	Test and Other		
					1	2	3	4	5	6	7	8	9	10		
14 Jan.	1000	S-72-2	Japan	Kagoshima											130	S. Iiyasaka S. Miyake Y. Tanaka
14 Jan.	1000	S-72-3	Japan	Kagoshima											130	T. Matsunaka
17 Jan.	1834	NASA 10.313 DM	USA	Kiruna											N A	I. Ueda A. F. D. Swell
17 Jan.	2152	NASA 10.306 DM	USA	Wallops Island											113	W. S. Smith
19 Jan.	0200	NASA 10.299 GM	USA	Point Barrow											N A	W. S. Smith
19 Jan.	1200	S-74-1	Japan	Kagoshima	C					C					345	R. Tsuchida A. Takahashi E. Asakura
19 Jan.	1200	S-74-2	Japan	Kagoshima			C								320	M. Oda T. Asahi
19 Jan.	1200	S-74-3	Japan	Kagoshima			C								327	I. Kikuchi H. Matsunaka
19 Jan.	1200	S-74-4	Japan	Kagoshima	C	C				D					330	T. Tsubokawa T. Ogawa
19 Jan.	1905	NASA 10.314 DM	USA	Kiruna			E								N A	I. Ueda A. F. D. Swell
23 Jan.	0000	SL 726	United Kingdom	Woomera		C	E								140	K. Burrows J. N. G. Wilson E. B. Davies
23 Jan.	2300	NASA 10.315 DM	USA	Kiruna			E								120	I. Ueda A. F. D. Swell
25 Jan.	2100	NASA 10.316 DM	USA	Kiruna			E								115	I. Ueda A. F. D. Swell
26 Jan.	0945	NASA 17.03 GE	USA	Wallops Island	B										271	W. N. Hess
26 Jan.	0947	NASA 18.11 GE	USA	Wallops Island			E								19	E. J. Bauer
27 Jan.	1953	NASA 15.47 GT	USA	Wallops Island										A	102	H. Pedersen
28 Jan.	0549	NASA 18.25 UG	USA	Wallops Island						F					234	W. L. Krauss
28 Jan.	0716	AEF-II-118	Canada	Fort Churchill	C	F									100	A. G. McNamara P. A. Forsyth N. I. Smith
30 Jan.	2017	NASA 10.363 GM	USA	Fort Churchill			E								124	W. S. Smith
31 Jan.	0315	NASA 4.266 DG NB 3.221	USA	White Sands								D	E		170	G. R. Carruthers
31 Jan.	0700	NASA 10.298 GM	USA	Point Barrow			E								N A	W. S. Smith
31 Jan.	0830	NASA 10.274 GM	USA	Point Barrow			G								N A	E. Hildebrand
31 Jan.	1757	NASA 10.307 GM	USA	Wallops Island			E								101	W. S. Smith
31 Jan.	1821	NASA 15.61 DM	USA	Wallops Island						D					50	A. J. Krueger
31 Jan.	1910	NASA 14.389 UA	USA	Wallops Island			F								115	C. A. Barth L. G. Moore
04 Feb.	1435	NASA 4.372 UA	USA	Fort Churchill			G								106	A. G. C. Meyer
04 Feb.	2530	NASA 10.300 GM	USA	Point Barrow			E								N A	W. S. Smith
06 Feb.	0939	NASA 10.304 GM	USA	Fort Churchill			E								122	W. S. Smith
06 Feb.	1435	NASA 4.373 UA	USA	Fort Churchill			G								124	A. G. C. Meyer
05 Feb.	1800	NASA 15.62 DM	USA	Wallops Island						D					50	A. J. Krueger

# ROCKETS AND SATELLITES

Summary of Standing Rocket Launchings 1 January - 30 June 1969					Experiments										Approx. Altitude (km)	Principal Exper- imenter(s)
Date (UT)	Time (UT)	Rocket Number or Type	Sponsoring Country	Launching Site	Aurora and Airglow	Atmospheric Physics	Ionosphere	Energetic Particles	Magnetic Fields	Solar Physics	Astronomy	Planetary	Biology	Test and Other		
					1	2	3	4	5	6	7	8	9	10		
06 Feb.	1929	NASA 14,300 UA	USA	Wallops Island		F									117	C. A. Barth L. G. Meira
06 Feb.	2100	NASA 10,367 GM	USA	Wallops Island		Z									128	W. S. Smith
12 Feb.	1715	NASA 4,135 DG NE 3,175	USA	White Sands						E					188	R. Tousey
13 Feb.	0006	E-75	Japan	Kagoshima				B							310	I. Higashino M. Sasakuma T. Masuoka N. Watanabe
13 Feb.	2311	NASA 18,06 CA	USA	Wallops Island		A J									165	J. F. Bedinger, Jr.
19 Feb.	0417	AMF-V-117	Canada	Fort Churchill	B		C								124	D. J. McEwen A. G. McNamara H. I. Schiff R. W. Nicholls
09 Mar.	0614	AAD-TV-16	Canada	Fort Churchill			A C D								N. A.	R. E. Barrington E. E. Budzinski B. A. Whalen
07 Mar.	0227	NASA 4,300 PG	USA	White Sands							F				160	R. Novick
07 Mar.	1312	NASA 18,03 GE	USA	Cape Parry				B							N. A.	E. Wescott
07 Mar.	2230	AY 2,727	USA	Natal		X									200	R. G. Walker C. Cuniff
08 Mar.	0316	NASA 18,94 GE	USA	Cape Parry				B							N. A.	E. Wescott
08 Mar.	0325	NASA 17,05 GE	USA	Cape Parry				B							N. A.	E. Wescott
10 Mar.	0440	JED-VL-20	Canada	Fort Churchill	B		E			F					N. A.	A. G. McNamara B. A. Whalen P. A. Forsyth D. J. McEwen G. G. Cloutier C. D. Anger
11 Mar.	0033	AAF-VB-22	Canada	Fort Churchill	B		E			F		A			N. A.	C. D. Anger P. A. Forsyth A. Kavadas D. J. McEwen E. E. Budzinski R. Wlochowicz A. G. McNamara
11 Mar.	0632	NASA 18,01 UA	USA	Fort Churchill	B										N. A.	C. A. Barth W. Sharp
14 Mar.	0530	NASA 4,200 DG NB 3,210	USA	White Sands							F				154	R. C. Henry J. F. Meekins
16 Mar.	1706	K-NA-11	Federal Republic of Germany	Kiruna			X								226	G. Haerndel
17 Mar.	1610	K-NA-10	Federal Republic of Germany	Kiruna			X								231	G. Haerndel
20 Mar.	0040	ADF-III-37	Canada	Fort Churchill	B										106	A. V. Jones E. J. Llewellyn
20 Mar.	3100	ADF-III-38	Canada	Fort Churchill	B										114	A. V. Jones E. J. Llewellyn
31 Mar.	1410	Rohmuna-1	Pakistan	Sonmiani		B									138	M. Shafi Ahmad

# ROCKETS AND SATELLITES

Summary of Sounding Rocket Launchings 1 January - 30 June 1969					Experiments										Approx. Altitude (km)	Principal Experi- menter(s)
Date (UT)	Time (UT)	Rocket Number or Type	Sponsoring Country	Launching Site	Aurora and Airglow	Atmospheric Physics	Ionosphere	Energetic Particles	Magnetic Fields	Solar Physics	Astronomy	Planetology	Biology	Test and Other		
					1	2	3	4	5	6	7	8	9	0		
01 Apr.	0438	ADD-VB-23	Canada	Fort Churchill	B										372	C. D. Anger A. G. McNamara R. J. R. Judge A. V. Jones D. J. McEwen R. Wlochowicz
08 Apr.	1700	NASA 4.282 CS	USA	White Sands						F					176	W. P. Reidy G. S. Vaiana
19 Apr.	0019	AMM-BA-01	Canada	Fort Churchill	C										104	H. I. Schiff L. R. McGill
19 Apr.	0117	AMM-BA-02	Canada	Fort Churchill	C										103	H. I. Schiff L. R. McGill
19 Apr.	0409	AMM-BA-03	Canada	Fort Churchill	C										55	H. I. Schiff L. R. McGill
26 Apr.	1730	INCOSPAR 40.04	India	Thumba							F				144	E. V. Chitnis U. R. Rao M. Oda
26 Apr.	1734	INCOSPAR 40.05	India	Thumba							F				148	E. V. Chitnis U. R. Rao M. Oda
1 May	2000	AHF-IV-14	Canada	Fort Churchill			C D E								760	R. E. Barrington A. G. McNamara
7 May	1400	AHF-IV-15	Canada	Fort Churchill			D E								820	A. G. McNamara G. G. Shaverd
Supplementary List to Summary in WDC-A Catalogue of Data, March 1968																
1967																
07 Sep.	0007	NASA 14.305 UI	USA	Vega Baja			B C D E								N/A	S. A. Bowhill L. G. Smith
07 Sep.	2034	NASA 14.309 UI	USA	Vega Baja			B C D E								N/A	S. A. Bowhill L. G. Smith
08 Sep.	1003	NASA 14.308 UI	USA	Vega Baja			B C D E								N/A	S. A. Bowhill L. G. Smith
Supplementary List to Summary in WDC-A Catalogue of Data, March 1969																
1968																
24 Mar.	1245	NASA 10.270 GM	USA	Natal		Z									120	W. S. Smith
25 Mar.	0050	NASA 10.271 GM	USA	Natal		Z									120	W. S. Smith
25 Mar.	1258	NASA 10.272 GM	USA	Natal		Z									120	W. S. Smith
08 Jun.	1838	NASA 4.134 DS NE 3.174	USA	White Sands						E					179	R. Tousey J. D. Purcell G. E. Brueckner
11 Jun.	2330	Black Brant IV 19.01 NE	USA	Natal		G X									790	G. W. Brandon J. E. McCoy

# ROCKETS AND SATELLITES

Summary of Sounding Rocket Launchings 1 January - 30 June 1959					Experiments										Approx. Altitude (km)	Principal Experi- menter(s)
Date (UT)	Time (UT)	Rocket Number or Type	Sponsoring Country	Launching Site	Aurora and Airglow	Atmospheric Physics	Ionosphere	Energetic Particles	Magnetic Fields	Solar Physics	Astronomy	Planetology	Biology	Test and Other		
					1	2	3	4	5	6	7	8	9	0		
1968 (cont.)																
24 Jul.	1006	NASA 14.358 UI	USA	Wallops Island			A B C	B							206	S. A. Bowhill L. G. Smith
24 Jul.	1036	NASA 14.359 UI	USA	Wallops Island			A B C	B							211	S. A. Bowhill L. G. Smith
24 Jul.	1700	NASA 14.360 UI	USA	Wallops Island			A B C	B							214	S. A. Bowhill L. G. Smith
24 Jul.	2136	NASA 14.361 UI	USA	Wallops Island			A B C	B							206	S. A. Bowhill L. G. Smith
22 S.p.	1530	NASA 4.246 DS NE 3.220	USA	White Sands						E					189	M. J. Koomen R. Tousey
19 Nov.	1800	NASA 10.293 GM	USA	Wallops Island		Z									123	W. S. Smith
03 Dec.	1930	Black Brant IV	Federal Republic of Germany	Natal		G									700	Ulf Von Zahn
10 Dec.	1716	NASA 8.51 UA	USA	Fort Churchill			D								837	K. R. Damon
14 Dec.	1508	NASA 14.352 UA	USA	White Sands				D							159	C. L. Hemenway
ROCKET DISCIPLINE CODES																
<ol style="list-style-type: none"> <li>Aurora and Airglow               <ol style="list-style-type: none"> <li>Gegenschein</li> <li>Auroral emissions</li> <li>Airglow emissions</li> <li>Airglow composition</li> <li>Atmospheric radiations</li> </ol> </li> <li>Atmospheric Physics               <ol style="list-style-type: none"> <li>Winds</li> <li>Pressure</li> <li>Temperature</li> <li>Albedo</li> <li>Planetary radiations (IR)</li> <li>Neutral density</li> <li>Neutral composition</li> <li>Electromagnetic waves</li> <li>Acoustics</li> <li>Meteorology</li> <li>Vapor trail</li> <li>Falling sphere - winds, temperature, and density</li> <li>Grenades - winds, temperature, pressure, and density</li> </ol> </li> <li>Ionosphere               <ol style="list-style-type: none"> <li>Wave propagation</li> <li>Electric currents (mag. fields)</li> <li>Ion/electron density</li> <li>Ion/electron composition</li> <li>Ion/electron temperature</li> </ol> </li> <li>Energetic Particles               <ol style="list-style-type: none"> <li>Galactic cosmic rays</li> <li>Solar particle radiation</li> <li>Terrestrial trapped radiation</li> <li>Particle precipitation</li> </ol> </li> <li>Magnetic Fields               <ol style="list-style-type: none"> <li>Geomagnetic fields</li> <li>Electric fields</li> </ol> </li> <li>Solar Physics               <ol style="list-style-type: none"> <li>Radio (1-1000mm)</li> <li>Infrared (.8-1000..)</li> <li>Visible (3000-8000A)</li> <li>Ultraviolet (2000-3000A)</li> <li>Extreme UV (100-2000A)</li> <li>X Rays (.001-100A)</li> </ol> </li> <li>Astronomy               <ol style="list-style-type: none"> <li>Radio (1-1000mm)</li> <li>Infrared (.8-1000..)</li> <li>Visible (3000-8000A)</li> <li>Ultraviolet (2000-3000A)</li> <li>Extreme UV (100-2000A)</li> <li>X Rays (.001-100A)</li> <li>Gamma Rays (.001A)</li> </ol> </li> <li>Planetology               <ol style="list-style-type: none"> <li>Micrometeorites</li> <li>Zodiacal light</li> <li>Gravity</li> <li>Terrain photographs</li> </ol> </li> <li>Biology</li> <li>Test and Other               <ol style="list-style-type: none"> <li>Rocket performance</li> <li>Communication systems</li> <li>Satellite experiment test</li> <li>Unknown</li> </ol> </li> </ol>																
X. Subdivision of numbered discipline unknown.																



## ROCKETS AND SATELLITES

**NASA ROCKET CODE**

Place 1: Type of vehicle \_\_\_\_\_

Place 2: Flight number of series \_\_\_\_\_

Place 3: Instrumenting agency \_\_\_\_\_

Place 4: Type of experiment \_\_\_\_\_

Example      10.36      G      A

Type of Vehicle:	Type of Vehicle:	Instrumenting Agency:	Type of Experiment:
1. Aerobee 100	10. Nike Cajun	G Goddard Space Flight Center	A Aeronomy
2. Arcon	11. Journeyman	N Other NASA centers	B Biological
3. Nike Asp	12. Special projects	U College or university	E Energetic particles and fields
4. Aerobee 150, 150A	13. Nike Apache	D Department of Defense	G Galactic astronomy
5. Iris	14. Arcas	A Other Government agency	I Ionospheric physics
6. Aerobee 300	15. Astrobee 1300	C Industrial corporation	M Meteorology
7. Argo E-5	16. Aerobee 350	I International	P Special projects
8. Javelin	17. Nike Tomahawk		R Radio astronomy
9. Skylark			S Solar physics
			T Test and support

## ROCKETS AND SATELLITES

### SCIENTISTS AND INSTITUTIONS CONDUCTING SCIENTIFIC EXPERIMENTS USING SOUNDING ROCKETS

K. Abiko  
Yokogawa-Hewlett-Packard, Ltd.  
Hachioji  
Tokyo, JAPAN

Dr. M. Shafi Ahmad  
Pakistan Space and Upper Atmosphere  
Research Committee  
P. O. Box 3125  
Karachi, PAKISTAN

Dr. C. D. Anger  
University of Calgary  
Calgary, Alberta, CANADA

Dr. I. Aoyama  
Geophysical Institute  
Tohoku University  
Sendai, JAPAN

Dr. N. Arizumi  
Aerological Section  
Observation Division  
Japan Meteorological Agency  
Tokyo, JAPAN

T. Asahina  
Hitachi Co., Ltd.  
Totsuka  
Yokohama, JAPAN

S. Ashida  
Meisei Denki Co.  
Meguro-Ku, Tokyo, JAPAN

Dr. T. Aso  
Ionosphere Research Laboratory  
Kyoto University  
Kyoto, JAPAN

Dr. T. Asoh  
Department of Electronics  
Kyoto University  
Kyoto, JAPAN

Dr. R. E. Barrington  
Communications Research Center  
Department of Communications  
Shirley Bay  
P. O. Box 490, Terminal "A"  
Ottawa 2, Ontario, CANADA

Dr. C. A. Barth  
Atmospheric & Space Physics Laboratory  
University of Colorado  
Boulder, Colorado 80302 U.S.A.

Dr. S. J. Bauer  
Code 615  
NASA Goddard Space Flight Center  
Greenbelt, Maryland 20771 U.S.A.

J. F. Bedinger, Jr.  
Geophysics Corporation of America  
Bedford, Massachusetts 01730 U.S.A.

Dr. S. A. Bowhill  
Electrical Engineering Dept.  
University of Illinois  
Urbana, Illinois 61801 U.S.A.

Dr. G. W. Brandon  
Code TG-6  
NASA Manned Spacecraft Center  
Houston, Texas 77058 U.S.A.

Dr. G. E. Brueckner  
Code 7140-B  
U.S. Naval Research Laboratory  
Washington, D.C. 20390 U.S.A.

Dr. E. E. Budzinski  
Pure Physics  
National Research Council  
100 Sussex Drive  
Ottawa 7, Ontario, CANADA

Dr. K. Burrows  
Radio and Space Research Station  
Ditton Park  
Slough, Bucks, ENGLAND

## ROCKETS AND SATELLITES

---

Dr. G. R. Carruthers  
Code 7124.3  
U.S. Naval Research Laboratory  
Washington, D. C. 20390 U.S.A.

E. V. Chitnis  
Physical Research Laboratory  
Navrangpura  
Ahmedabad-9, INDIA

Dr. G. G. Cloutier  
University of Montreal  
Montreal, Quebec, CANADA

C. Cunniff  
Code CROI  
Air Force Cambridge Research  
Laboratories  
L. G. Hanscom Field  
Bedford, Massachusetts 01730 U.S.A.

Dr. K. R. Damon  
Syracuse University Research Corp.  
P. O. Box 26  
Syracuse, New York 13210 U.S.A.

Dr. E. B. Dorling  
University College London  
Gower Street  
London W.C. 1, ENGLAND

Dr. M. Ejiri  
Institute of Space and Aeronautical  
Science  
University of Tokyo  
Meguro-Ku, Tokyo, JAPAN

Dr. P. A. Forsyth  
Physics Department  
University of Western Ontario  
London, Ontario, CANADA

Dr. N. Fugono  
Radio Research Laboratory  
Ministry of Posts and Telecommunications  
Kokubunji  
Tokyo, JAPAN

Dr. K. Fujitani  
Department of Instrumentation  
Kobe University  
Kobe, JAPAN

Dr. G. Haerendel  
Max-Planck Institut fur Physik  
und Astrophysik  
8046 Garching  
Munich  
FEDERAL REPUBLIC OF GERMANY

Dr. S. Hayakawa  
Department of Physics  
Nagoya University  
Chikusa-Ku, Nagoya, JAPAN

Dr. C. L. Hemenway  
Dudley Observatory  
100 Fuller Road  
Albany, New York 12205 U.S.A.

Dr. R. C. Henry  
Code 7122.11  
U.S. Naval Research Laboratory  
Washington, D.C. 20390 U.S.A.

Dr. W. N. Hess  
Code TA  
NASA Manned Spacecraft Center  
Houston, Texas 77058 U.S.A.

I. Higashino  
Osaka City University  
Osaka, JAPAN

E. Hilsenrath  
Code 622  
NASA Goddard Space Flight Center  
Greenbelt, Maryland 20771 U.S.A.

Y. Hishida  
Hitachi Co., Ltd.  
Totsuka  
Yokohama, JAPAN

## ROCKETS AND SATELLITES

Dr. T. Imai  
Institute of Physical and Chemical  
Research  
University of Tokyo  
Meguro-Ku, Tokyo, JAPAN

H. Irie  
Osaka Denpa Co., Ltd.  
Osaka, JAPAN

S. Iwasaki  
Osaka Denpa Co., Ltd.  
Osaka, JAPAN

Dr. A. V. Jones  
National Research Council  
100 Sussex Drive  
Ottawa 7, Ontario, CANADA

Dr. R. J. R. Judge  
Pure Physics  
National Research Council  
100 Sussex Drive  
Ottawa 7, Ontario, CANADA

K. Kajiyama  
Hitachi Co., Ltd.  
Totsuka  
Yokohama, JAPAN

Dr. A. Kavadas  
Space Engineering Division  
University of Saskatchewan  
Saskatoon, Saskatchewan, CANADA

Dr. I. Kimura  
Department of Electronics  
Kyoto University  
Kyoto, JAPAN

Dr. S. Kobane  
Meisei Denki Co., Ltd.  
Meguro-Ku, Tokyo, JAPAN

Dr. M. J. Koomen  
Code 7141-K  
U. S. Naval Research Laboratory  
Washington, D. C. 20390 U.S.A.

Dr. W. L. Kraushaar  
University of Wisconsin  
Madison, Wisconsin 53706 U.S.A.

A. J. Krueger  
U.S. Naval Ordnance Test Station  
China Lake, California 93557 U.S.A.

Dr. E. J. Llewellyn  
Institute of Space & Atmospheric Studies  
University of Saskatchewan  
Saskatoon, Saskatchewan, CANADA

T. Masuoka  
Osaka City University  
Osaka, JAPAN

Dr. H. Matsumoto  
Department of Instrumentation  
Kobe University  
Kobe, JAPAN

Dr. T. Matsumoto  
Department of Physics  
Nagoya University  
Chikusa-Ku, Nagoya, JAPAN

Dr. T. Matsuzawa  
Yokogawa-Hewlett-Packard, Ltd.  
Hachioji  
Tokyo, JAPAN

Dr. J. E. McCoy  
Code TG-53  
NASA Manned Spacecraft Center  
Houston, Texas 77058 U.S.A.

Dr. D. J. McEwen  
Communications Research Center  
Department of Communications  
Shirley Bay  
P. O. Box 490, Terminal "A"  
Ottawa 4, Ontario, CANADA

Dr. A. G. McNamara  
Radio Electric Engineering Division  
100 Sussex Drive  
Ottawa 7, Ontario, CANADA

## ROCKETS AND SATELLITES

---

J. F. Meekins  
Code 7125.1  
U.S. Naval Research Laboratory  
Washington, D.C. 20390 U.S.A.

Dr. L. R. Megill  
ESSA Research Laboratory  
Boulder, Colorado 80302 U.S.A.

L. G. Meira  
Atmospheric & Space Physics  
Laboratory  
University of Colorado  
Boulder, Colorado 80302 U.S.A.

H. Mimura  
Yokogawa-Hewlett-Packard, Ltd.  
Hachioji  
Tokyo, JAPAN

Dr. S. Miyamoto  
Institute of Space and Aeronautical  
Science  
University of Tokyo  
Meguro-Ku, Tokyo, JAPAN

Dr. R. W. Nicholls  
Department of Physics  
York University  
Toronto, Ontario, CANADA

Dr. A. O. C. Nier  
Institute of Technology  
Physics Department  
University of Minnesota  
Minneapolis, Minnesota 55455 U.S.A.

Dr. R. Novick  
Radiation Laboratory  
Columbia University  
Broadway & West 116th Street  
New York, New York 10027 U.S.A.

Dr. T. Obayashi  
Institute of Space and Aeronautical Science  
University of Tokyo  
Meguro-Ku, Tokyo, JAPAN

M. Oda  
Institute of Space and Aeronautical Science  
University of Tokyo  
Meguro-Ku, Tokyo, JAPAN

Dr. T. Ogawa  
G.R.L. Faculty of Science  
University of Tokyo  
Meguro-Ku, Tokyo, JAPAN

Dr. H. Oya  
Ionosphere Research Laboratory  
Kyoto University  
Kyoto, JAPAN

Dr. K. Oyama  
Institute of Space and Aeronautical Science  
University of Tokyo  
Meguro-Ku, Tokyo, JAPAN

H. Pedolsky  
Code 721  
NASA Goddard Space Flight Center  
Greenbelt, Maryland 20771 U.S.A.

J. D. Purcell  
Code 7142  
U.S. Naval Research Laboratory  
Washington, D.C. 20390 U.S.A.

Dr. U. R. Rao  
Physical Research Laboratory  
Navrangpura  
Ahmedabad-9, INDIA

Dr. W. P. Reidy  
American Science & Engineering Inc.  
11 Carleton Street  
Cambridge, Massachusetts 02138 U.S.A.

Dr. I. Sakai  
Japan Meteorological Agency  
Tokyo, JAPAN

M. Sasanuma  
Osaka City University  
Osaka, JAPAN

## ROCKETS AND SATELLITES

O. Sato  
Yokogawa-Hewlett-Packard, Ltd.  
Hachioji  
Tokyo, JAPAN

Dr. H. I. Schiff  
York University  
Toronto, Ontario, CANADA

A. F. D. Scott  
Physics Department  
University College London  
Gower Street  
London W.C. 1, ENGLAND

W. Sharp  
Atmospheric & Space Physics  
Laboratory  
University of Colorado  
Boulder, Colorado 80302 U.S.A.

G. G. Shepherd  
University of Saskatchewan  
Saskatoon, Saskatchewan, CANADA

Dr. L. G. Smith  
Aeronautics and Astronautics  
Department  
Stanford University  
Stanford, California 94305 U.S.A.

W. S. Smith  
Code 621  
NASA Goddard Space Flight Center  
Greenbelt, Maryland 20771 U.S.A.

Dr. T. Saito  
Radio Research Laboratory  
Ministry of Posts and Telecommunications  
Kokubunji  
Tokyo, JAPAN

A. Takechi  
Tokyo Astronautical Observatory  
Mitaka, Tokyo, JAPAN

Dr. S. Takemura  
Department of Instrumentation  
Kobe University  
Kobe, JAPAN

Dr. H. Takeuchi  
Institute of Physical and Chemical  
Research  
University of Tokyo  
Meguro-Ku, Tokyo, JAPAN

H. Tanabe  
Tokyo Astronautical Observatory  
Mitaka, Tokyo, JAPAN

Dr. Y. Tanaka  
Department of Physics  
Nagoya University  
Chikusa-Ku, Nagoya, JAPAN

Dr. T. Tohmatsu  
G.R.L. Faculty of Science  
University of Tokyo  
Meguro-Ku, Tokyo, JAPAN

Dr. R. Tousey  
Code 7140  
U.S. Naval Research Laboratory  
Washington, D.C. 20390 U.S.A.

Dr. F. Toyama  
Aeronautics and Astronautics Institute  
Tokai University  
Hiratsuka, JAPAN

I. Udin  
Institute of Meteorology  
University of Stockholm  
Stockholm 19, SWEDEN

Dr. G. S. Vaiana  
American Science & Engineering Inc.  
11 Carleton Street  
Cambridge, Massachusetts 02138 U.S.A.

Ulf Von Zahn  
(address Unknown)

## **ROCKETS AND SATELLITES**

---

**R. G. Walker**  
Code CROI  
Air Force Cambridge Research  
Laboratories  
L. G. Hanscom Field  
Bedford, Massachusetts 01730 U.S.A.

**N. Watanabe**  
Osaka City University  
Osaka, JAPAN

**Dr. E. Wescott**  
Code 612  
NASA Goddard Space Flight Center  
Greenbelt, Maryland 20771 U.S.A.

**Dr. B. A. Whalen**  
National Research Council  
100 Sussex Drive  
Ottawa 7, Ontario, CANADA

**Dr. J. N. G. Wilson**  
University of Birmingham  
Edgbaston  
Birmingham 15, ENGLAND

**Dr. R. Wlochowiez**  
National Research Council  
100 Sussex Drive  
Ottawa 7, Ontario, CANADA

**T. Yamaki**  
Meisei Denki Co., Ltd.  
Meguro-Ku, Tokyo, JAPAN

**T. Yamashita**  
Osaka Denpa Co., Ltd.  
Osaka, JAPAN

# ROCKETS AND SATELLITES

## LAUNCHING SITES FOR SOUNDING ROCKETS\*

Sponsoring Country or Organization Launching Site	Geographical Coordinates		Local Standard Time to Nearest 15° Meridian and Remarks
	Latitude	Longitude	
<b>ARGENTINA</b>			
Chemical	30°20'S	66°19'W	UT - 4 (LST is UT - 3)
Mar Chiquita	37°46'S	57°25'W	UT - 4 (LST is UT - 3)
Tartagal (Vespucio)	22°45'S	63°49'W	UT - 4 (LST is UT - 3)
<b>AUSTRALIA</b>			
Carnarvon	24°30'S	113°24'E	UT + 8
Woomera	31°58'S	136°31'E	UT + 9 (LST is UT + 9-1/2)
<b>BRAZIL</b>			
Cassino (1966 Solar Eclipse)	32°12'S	52°10'W	UT - 3
Natal (Barreira do Inferno)	05°52'S	35°23'W	UT - 3 (LST is UT - 2)
<b>CANADA</b>			
Cape Parry	70°10'N	124°43'W	UT - 8
Fort Churchill	56°44'N	93°49'W	UT - 6
Resolute Bay	74°42'N	94°54'W	UT - 6
<b>FRANCE</b>			
Dumont d'Urville	64°40'S	140°01'E	UT + 9
Hammaguir, Algeria	30°51'N	03°04'W	UT (LST is UT + 1)
Ile du Levant	43°03'N	06°28'E	UT (LST is UT + 1)
Reggane, Algeria	26°43'N	0°10'E	UT (LST is UT + 1)
Vik	63°25'N	19°W	UT - 1
<b>GREECE</b>			
Karystos, Euboea (Evvoia)	38°01'N	24°25'E	UT + 2
<b>INDIA</b>			
Thumba	08°32'N	76°52'E	UT + 5 (LST is UT + 5-1/2)
<b>INDONESIA</b>			
LAPAN Space Center	Western part of Java, Pameungpeuk area		UT + 7 (LST is UT + 7-1/2)
<b>ITALY</b>			
Sardinia	39°56'N	09°24'E	UT + 1
<b>JAPAN</b>			
Kagoshima	31°15'N	131°04'E	UT + 9
<b>NETHERLANDS</b>			
Suriname (Coronie)	05°50'N	56°19'W	UT - 4 (LST is UT - 3-1/2)
<b>NEW ZEALAND</b>			
Cape Karikari	34°S	173°30'E	UT + 12
<b>NORWAY</b>			
Andoya	69°18'N	16°00'E	UT + 1
<b>PAKISTAN</b>			
Sonmiani	25°12'N	66°45'E	UT + 4 (LST is UT + 5)
<b>SPAIN</b>			
El Arenosillo	37°06'N	06°44'W	UT (LST is UT + 1)
<b>SWEDEN</b>			
Kiruna (Esrangle)	68°00'N	21°00'E	UT + 1
Kronogard	66°13'N	19°47'E	UT + 1
<b>USA</b>			
Ascension Island	07°53'S	14°25'W	UT - 1 (LST is UT)
Barking Sands (Kauai) Hawaii	22°04'N	159°46'W	UT - 11 (LST is UT - 10)
Cape Kennedy, Florida	28°27'N	80°32'W	UT - 5
Eglin AFB, Florida	30°23'N	86°42'W	UT - 6
Fort Wainwright, Alaska	64°48'N	147°38'W	UT - 10
Johnston Atoll	16°45'N	169°31'W	UT - 11
Point Arguello, Calif.	34°37'N	120°35'W	UT - 8
Point Barrow, Alaska	71°26'N	156°47'W	UT - 10
Point Mugu, California	34°07'N	119°07'W	UT - 8
San Nicolas Isl., Calif.	33°14'N	119°25'W	UT - 8
Tonopah, Nev.	38°00'N	116°30'W	UT - 8
Vandenberg AFB, Calif.	34°38'N	120°32'W	UT - 8
Vega Baja (Camp Tortoquero) P.R.	18°28'N	66°25'W	UT - 5
Wallops Island, Virginia	37°50'N	75°29'W	UT - 5
White Sands, New Mexico	32°24'N	106°32'W	UT - 7
USNS Croatan	Sounding rockets launched in western North Atlantic and eastern South Pacific Oceans		
<b>USSR</b>			
Kheisa Island	80°37'N	58°03'E	UT + 4 (LST is UT + 5)
Volgograd	48°41'N	44°21'E	UT + 3 (LST is UT + 4)
Mid-Latitude of USSR	45°-50°N	-	-
Ship "Professor Vize"	-	-	-

\*Launching sites used only to launch synoptic meteorological sounding rockets are not included in this list.



## ROCKETS AND SATELLITES

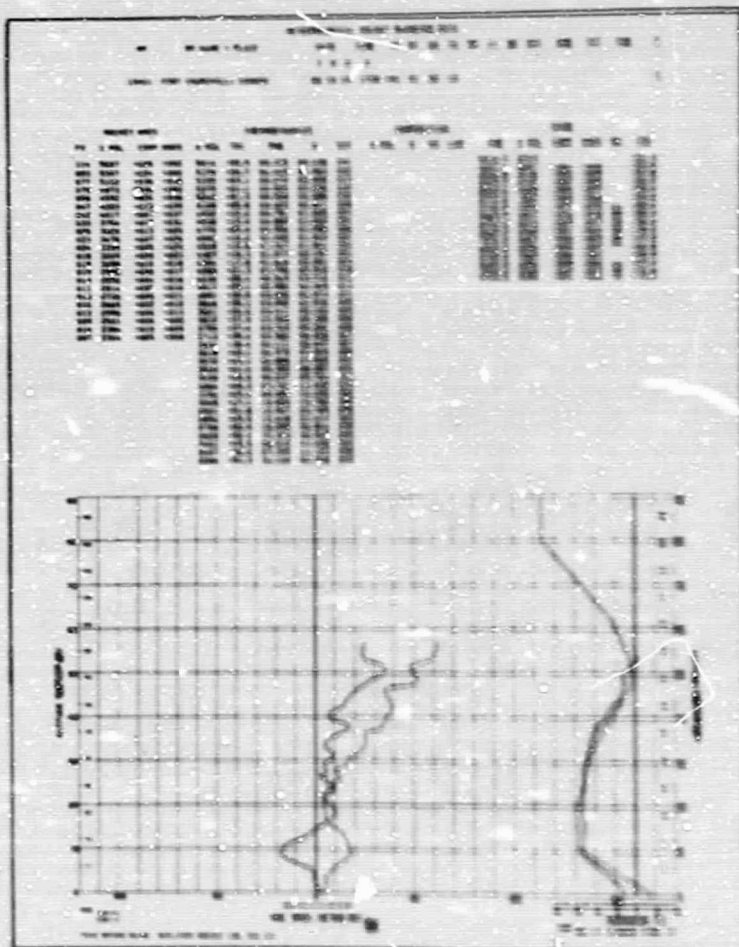
### Meteorological Sounding Rocket Data

World Data Center A for Meteorology has published monthly Data Reports of Meteorological Rocket Firings for the period January 1964 through December 1968. Each report contains the wind and temperature measurements from all available meteorological sounding rocket firings for that particular month, (data for altitudes 30-70 km) along with computed values for pressure, density, and speed of sound. It also includes the local radiosonde observations nearest the time of firing.

Copies of the WDC-A Data Reports have been sent to the discipline World Data Centers for Meteorology and for Rockets and Satellites. Interested scientists and scientific institutes desiring copies for their use in research should request them from:

World Data Center A  
Meteorology  
National Weather Records Center  
Asheville, North Carolina, USA 28801

A sample page from these monthly reports showing how the data is presented is reproduced below.



## B. ARTIFICIAL EARTH SATELLITES AND SPACE PROBES

The summary of satellite and space probe launchings which follows was compiled from information in the national launching announcements, and the reports of satellite and space probe launchings submitted to IUWDS and to the World Data Centers in accordance with the revised "COSPAR Guide to Rocket and Satellite Information and Data Exchange" adopted at the Tenth Meeting of COSPAR, July 1967, London, and Resolution No. 18 adopted at the Eleventh Meeting of COSPAR, May 1968, Tokyo. Shown below is a report on the U.S. solar radiation satellite Explorer 37 which illustrates the type of information in these reports. More detailed narrative descriptions are submitted to COSPAR and published in the COSPAR Information Bulletin when information on spacecraft experiments is available.

REPORT OF SATELLITE OR SPACE PROBE LAUNCHING					
COSPAR Designation	Popular Name	Launching Site (include coordinates)	Launching Date	Universal Time	
1968-17A	Explorer 37 (SOLRAD)	Wallops Island, Va. 37°50'N 75°29'W	5 March 1968	1828 UT	
Initial Orbital Elements		Apogee (km)	Perigee (km)	Period (min)	Inclination (degrees)
5 March 1968		878	522	98.77	59.4
Physical Characteristics (size, shape, weight) Nearly cylindrical (17 sides) spin-stabilized satellite, diameter 76 centimeters, height 69 centimeters, weight, 90 kilograms.					
Transmitters (Frequency and Power) Data transmitted continuously on 136.533 and 137.590 Megahertz at 150 milliwatts and on command on 137.410 Megahertz at 500 milliwatts.					
Scientific Experiments					
Objectives	Instruments	Experimenter(s) and Institution			
1. <u>X-ray emissions</u> : To obtain measurements of the intensity of solar X-ray emission in the 0.1 to 0.5 Å, 0.5 to 3 Å, 1 to 8 Å, 1 to 20 Å, 8 to 16 Å, 44 to 60 Å wavelength bands.	Scintillation counter, X-ray photometers, X-ray Geiger-Mueller tubes	Dr. Robert W. Kreplin, E. O. Hulburt Center for Space Research, U.S. Naval Research Laboratory			
2. <u>Ultra-violet emissions</u> : To obtain measurements of the intensity of solar ultra-violet emissions in the 1060 to 1350 Å and 1225 to 1350 Å wavelength bands.	Ultra-violet photometer	Dr. Robert W. Kreplin, E. O. Hulburt Center for Space Research, U. S. Naval Research Laboratory			
<u>Remarks</u> The measurements are made in different but overlapping X-ray and ultra-violet bands so that comparison of the different photometer outputs can be employed to construct a model of the solar X-ray spectrum and to provide an instantaneous indication of spectral changes with solar activity.					

# ROCKETS AND SATELLITES

## ARTIFICIAL EARTH SATELLITES AND SPACE PROBES

LAUNCHED FOR SCIENTIFIC PURPOSES  
1 January - 30 June 1969

COSPAR Designation Popular Name Country Launching Vehicle	Lifetime (Launch- Decay)	Physical Characteristics				Experiments	Initial Orbital Elements				Transmitting Frequencies (MHz)
		Weight (kg)	Shape	Diameter	Length- Height		Perigee (km)	Apogee (km)	Period (min)	Inclin. (degrees)	
1969-1A Venera 5 USSR Not available	1/5/69- 5/16/69	1,130	n.a.	n.a.	n.a.	Venus Probe	Landed on Venus 16 May 1969				-----
1969-2A Venera 6 USSR Not available	1/10/69- 5/17/69	1,130	n.a.	n.a.	n.a.	Venus Probe	Landed on Venus 17 May 1969				-----
1969-3A Cosmos 261 USSR Not available	1/12/69- 1/20/69	n.a.	n.a.	n.a.	n.a.	Study earth's radiation belts, cosmic rays, solar radiation, geomagnetic field, cloud distribution, charged particle density, upper atmosphere, meteoric matter.	203	346	89.8	65.4	19.995
1969-4A Soyuz 4 USSR Not available	1/14/69- 1/17/69	n.a.	n.a.	n.a.	n.a.	Manned orbital flight; Cosmonaut Shatalov.	173	225	88.25	51.6	20,008
1969-5A Soyuz 5 USSR Not available	1/15/69- 1/18/69	n.a.	n.a.	n.a.	n.a.	Manned orbital flight; Cosmonauts: Volynov, Yeliseyev, and Khrunov.	200	250	88.7	51.6	15,008
1969-6A OSO-3 USSR Not available	1/22/69	291	Two sections: bottom wheel, top fan	112 cm	95 cm	To measure the frequency and energy of solar emissions, to detect protons and electrons, and to study solar x-rays and gamma rays.	544	568	95.77	32.965	136.29
1969-8A Cosmos 264 USSR Not available	1/23/69- 2/5/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	219	330	89.7	70	19.150
1969-9A ISIS-1 Canada/USA TAI Delta	1/30/69	241	Oblate spheroid	107 to 127 cm		Topside ionosphere sounder and nine other ionospheric experiments.	574	3,522	128.3	6.4	136.08 136.41 136.59 137.95 401.75
1969-11A IntelSat 3F-1 USA Delta	2/6/69	284	Cylindrical	142 cm	104 cm	Communications Satellite	In synchronous orbit over the equator, initially over the Pacific at 174°E, moved in June 1969 to a position over the Indian Ocean at 62.5°E				-----
1969-12A Cosmos 265 USSR Not available	2/7/69- 5/1/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	283	485	91.9	71	-----
1969-14A Mariner VI USA Atlas-Centaur	2/25/69	413	Octagon	138 cm	46 cm	To study the surface and atmosphere of Mars using television cameras, radar, tracking data and other instruments.	(On trans-Mars trajectory)				2296.85
1969-15A Cosmos 266 USSR Not available	2/25/69- 3/5/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	208	358	8°	72.9	19.995
1969-16A ESSA-9 USA Delta	2/26/69	150	nearly cylindrical	107 cm	57 cm	Photography of earth's cloud cover; solar and terrestrial radiation data.	1,421	1,506	115.176	101.777	136.77 1697.5
1969-17A Cosmos 267 USSR Not available	2/26/69- 3/6/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	210	346	69.9	65	19.995
1969-18A Apollo 9 USA Saturn 5	3/3/69- 3/13/69	5,627 16,416 16,371	Conical command module Cylindrical service module Conical lunar module & adapter	390 cm 390 cm 6.6 to 3.9 m	366 cm 671 cm 8.3 m	Manned orbital flight to test the lunar module. Astronauts: James A. McDivitt, David R. Scott, and Russell Schweickart. Multispectral photography.	190	193	88.9	32.58	2272.5 2282.5 2287.5
1969-20A Cosmos 268 USSR Not available	3/5/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	219	2,186	109.2	48.4	-----
1969-21A Cosmos 269 USSR Not available	3/5/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	526	558	95.3	74	-----



# ROCKETS AND SATELLITES

COSPAR Designation Popular Name Country Launching Vehicle	Lifetime (Launch- Decay)	Physical Characteristics				Experiments	Initial Orbital Elements				Transmitting Frequencies (MHz)
		Weight (Kg)	Shape	Diameter	Length- Height		Perigee (Km)	Apogee (Km)	Period (min)	Inclin. (degrees)	
1969-22A Cosmos 270 USSR Not available	3/6/69- 3/14/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	205	350	89.8	65.4	19.995
1969-23A Cosmos 271 USSR Not available	3/15/69- 3/24/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	200	342	89.7	65.4	19.995
1969-24A Cosmos 272 USSR Not available	3/17/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	1,195	1,220	109.35	74	-----
1969-27A Cosmos 273 USSR Not available	3/22/69- 3/30/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	205	356	89.9	65.4	19.995
1969-28A Cosmos 274 USSR Not available	3/24/69- 4/1/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	213	323	89.6	65	19.995
1969-29A Meteor USSR Not available	3/26/69	n.a.	n.a.	n.a.	n.a.	Meteorological Satellite	654	713	97.9	81.2	-----
1969-30A Mariner VII USA Atlas-Centaur	3/27/69	413	Octagon	138 cm	46 cm	To study the surface and atmosphere of Mars using television cameras, radar, tracking data and other instruments.	(On trans-Mars trajectory)				2297.22
1969-31A Cosmos 275 USSR Not available	3/28/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	284	805	95.2	71	-----
1969-32A Cosmos 276 USSR Not available	4/4/69- 4/11/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	214	410	90.4	81.4	19.995
1969-33A Cosmos 277 USSR Not available	4/4/69- 7/6/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	280	494	92	71	-----
1969-34A Cosmos 278 USSR Not available	4/9/69 4/17/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	203	338	89.8	65	19.995
1969-35A 11th Molniya 1 USSR Not available	4/11/69	n.a.	n.a.	n.a.	n.a.	Communications Satellite	470	39,700	713	65	-----
1969-37A Nimbus 3 USA Thorad-Agena D	4/14/69	576	Butterfly-shaped	279 cm	254 cm	Meteorological satellite to study spatial and temporal distribution of atmospheric structure and to determine temporal variations in the near UV. APT system.	1,071	1,131	102.291	99.92	136.5 136.950 1702.5 1707.5
1969-38A Cosmos 279 USSR Not available	4/15/69- 4/23/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	194	280	89.1	51.8	19.995
1969-40A Cosmos 280 USSR Not available	4/23/69- 5/6/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	206	272	89.1	51.6	19.995
1969-42A Cosmos 281 USSR Not available	5/13/69- 5/20/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	194	317	89.4	65.4	19.995
1969-43A Apollo 10 USA Saturn 3	5/18/69- 5/26/69	5,569 23,300 15,807	Conical command module. Cylindrical service module. Conical lunar module & adapter	391 cm 391 cm 6.6 to 3.9 m	348 cm 749 cm 8.5 m	Manned flight around Moon and return to Earth, with test of lunar module near Moon. Astronauts: Thomas P. Stafford, John W. Young, and Eugene A. Cernan. Photography of Moon.	(Trajectory to Moon and return to Earth)				2272.5 2282.5 2287.5 5765
1969-44A Cosmos 282 USSR Not available	5/20/69- 5/28/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	209	343	89.8	65.4	19.995

# ROCKETS AND SATELLITES

COSPAR Designation Popular Name Country Launching Vehicle	Lifetime (Launch- Decay)	Physical Characteristics				Experiments	Initial Orbital Elements				Transmitting Frequencies (MHz)
		Weight (Kg)	Shape	Diameter	Length- Height		Perigee (Km)	Apogee (Km)	Period (min)	Inclin. (degrees)	
1969-45A IntelSat 3F-4 USA Delta	5/22/69	284	Cylindrical	142 cm	104 cm	Communications Satellite	In synchronous orbit over the equator and Pacific Ocean at 174° E.				-----
1969-47P Cosmos 283 USSR Not available	5/27/69- 6/6/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	210	1,539	102.1	82	-----
1969-48A Cosmos 284 USSR Not available	5/29/69- 6/6/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	207	308	89.5	51.8	19.995
1969-49A Cosmos 285 USSR Not available	6/3/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	278	518	92.2	71	-----
1969-51A OGO-6 USA Thornd-Agena D	6/5/69	632	Box	Length 183 cm Width 91 cm Height 91 cm		Twenty-five experiments to study the Earth's space environment and its relation- ship to the Sun.	397	1,098	59.75	82	136.20 400.249 400.848
1969-52A Cosmos 286 USSR Not available	6/15/69- 6/23/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	206	349	39.8	65.4	19.995
1969-53A Explorer 41(IMP-7) USA TAT-Delta	6/21/69	79	Cylindrical Base	71 cm	20 cm	Twelve experiments to study solar plasma, magnetic fields and cosmic rays.	343	178,200	3.3 days	87	136.080
1969-54A Cosmos 287 USSR Not available	6/24/69- 7/2/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	190	268	89	51.8	19.995
1969-55A Cosmos 288 USSR Not available	6/27/69 7/5/69	n.a.	n.a.	n.a.	n.a.	Cosmos Series	201	281	89.2	51.8	19.995
1969-56A Biosatellite 3 USA Delta	6/29/69- 7/7/69	438	Adapter Cylindrical Cone	102 to 145 cm	1.2 m.	Five experiments to study the effects of weightlessness on the mental, emotional, and physiological processes in a primate.	361	395	92.11	33.56	136.05
		250	Re-entry Vehicle Blunt Cone	102 cm	1.1 m.						

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